



Blalock, Susan <susan.blalock@deq.virginia.gov>

FW: Semi-Monthly Daily LFG Well Temperature and Status Update

1 message

Crystal Bazyk <crystal.bazyk@deq.virginia.gov>
To: Susan Blalock <susan.blalock@deq.virginia.gov>

Wed, Jul 6, 2022 at 8:05 AM

From: Nachman, Lucas <LNachman@scsengineers.com>
Sent: Friday, July 1, 2022 10:01 AM
To: crystal.bazyk@deq.virginia.gov; hall.kristen@epa.gov; jeff.hurst@deq.virginia.gov; willard.erinm@epa.gov; STACY.BOWERS@DEQ.VIRGINIA.GOV; David Cochran <dcochran@bristolva.org>; CityManager@bristolva.org; 'mmartin@bristolva.org' (mmartin@bristolva.org) <mmartin@bristolva.org>
Cc: Warren, Charles <CWarren@scsengineers.com>; Dick, Bob <BDick@scsengineers.com>; King, Brandon <BKing@scsengineers.com>; Lock, Tom <TLock@scsengineers.com>
Subject: Semi-Monthly Daily LFG Well Temperature and Status Update

Ms. Hall and Ms. Bazyk,

In accordance with EPA's letter, "Approval of Higher Operating Temperature Values of Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Facility" from August 2021, I am providing the June 30, 2022 status report on the existing wells, expansion of the gas collection system, and continuing operating and monitoring results, covering the period from June 16-30, 2022.

Let me know if you have any questions.

Lucas Nachman

Project Professional

SCS Engineers

Roanoke, VA

Cell: 804-840-5325

lnachman@scsengineers.com



Bimonthly Daily LFG Well Temperature Update_6-30-22.pdf
9885K

June 30, 2022
File No. 02218208.04

MEMORANDUM

TO: Kristin Hall, EPA Region III
Crystal Bayzk, VDEQ-SWRO

FROM: D. Brandon King, SCS Engineers
Robert E. Dick, SCS Engineers

SUBJECT: Semi-monthly Status Update – June 15th through June 30th, 2022
Bristol Integrated Waste Management Facility, Bristol, Virginia

In accordance with the Environmental Protection Agency (EPA) Region III letter, *Approval of Higher Operating Temperature Values for Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Management Facility*, dated 8/23/21, SCS is submitting this semi-monthly status update to satisfy the condition of compliance provision #2. This compliance provision report includes daily temperature readings of the existing and new wells installed. In addition, this report includes a summary of work accomplished during this reporting period of 6/15/22 through 6/30/22, pursuant of compliance provision #2.

DAILY TEMPERATURE READINGS

Daily temperature readings were recorded by the City throughout the second half of June and displayed on the attached table. Existing wells GW-31R and GW-37 temperatures have declined from 170F in mid-June to approximately 145F at the end of this reporting period. Existing well GW-46 exhibited temperatures continuing above 145F during this reporting period, while existing well GW-47 remained below 145F throughout this reporting period. New wells GW-49, GW-50, and GW-64 had previously recorded temperatures above 145F, but have shown readings below the 145F Subpart AAAA threshold since June 17. New well GW-55 recorded temperatures below 145F during this period, but demonstrated a reading of 150F on 6/30/22. SCS has recently made dewatering improvements at well GW-55. In addition, wells GW-32R, GW-50, GW-52, GW-57, and GW-67 recorded relatively consistent readings greater than 145F from approximately June 10 to the end of this reporting period according to the City's data. All other LFG wells recorded temperatures below 145F during the second half of June.

SCS mobilized and performed the 15-day retest monitoring on the LFG wellfield on 6/8/22.

LFG ANALYTICAL DATA REVIEW

The City and SCS are still awaiting the EPA's evaluation of the Higher Operating Value for Temperature Request letter submitted to EPA on 3/8/22. According to SCS end of June 2022 LFG monthly wellfield data, exceedance temperatures persist in HOV requested wells GW-31R and GW-37.

Well GW-55 recorded a temperature of 140F by SCS on 6/16/22. SCS recorded a CO sample via 1.5L Summa Canister at GW-55 on 6/16/22 despite being below the Subpart AAAA temperature requirement. As you may recall, SCS was unable to record a CO ALT 145 sample on well GW-55 on



6/8/22 due to liquids and maintenance concerns. The laboratory data exhibited a CO concentration of 200 parts per million (ppm) from the report dated 6/29/22.

Two other CO ALT 145 samples were collected for well GW-46 on 6/8/22 and again on 6/16/22. The results showed CO concentrations of 959 ppm for the 6/8/22 sample and 990 ppm for the 6/16/22 sample. However, additional enhanced monitoring is not required per Subpart AAAA as well GW-46 has an established higher operating value for temperature per EPA approval letter dated 8/23/21. The laboratory analytical results for EPA Method CO ALT 145 from the reports dated 6/17/22 and 6/29/22 are attached for reference.

SCS personnel did not observe any signs of SSO events while performing the 15-day LFG wellfield retest on 6/16/22. SCS looked for smoke, settlements, discolored or deformed piping, but observed no evidence at any wellhead.

NON-ROUTINE O&M

SCS Field Services (FS) O&M mobilized to the Facility on 6/21/22 to pull dewatering pumps from LFG wells for inspection, cleaning, replace parts as needed, and test the pneumatic pump to confirm operational status prior to installing back in the well. The City procured four Pump One dewatering pumps during the week of 6/13/22 that SCS O&M installed. During the week of 6/21/22, O&M technicians removed LFG lateral, forcemain and airline from wells GW-56 and GW-57 to allow the City to put cover soil in that exposed area. SCS restored and connected the LFG lateral, forcemain, and airline to wells GW-56 and GW-57 by 6/24/22. SCS also raised well GW-56. SCS replaced pumps in wells GW-55, GW-57, GW-61, and GW-62. SCS cleaned the tri-tubing in well GW-61, but replace the tri-tubing in wells GW-55 and GW-61. SCS cleaned and repaired a total of 7 pumps to working condition. However, SCS cleaned 5 other pumps that could not be repaired to working condition during the week of 6/21/22.

SCS-FS non-routine O&M returned to the Facility on-site 6/28/22 and is scheduled to remain on site through July 1 to perform pump maintenance activities and other non-routine O&M activities such as raising wells and moving lateral piping for filling and/or soil cover placement activities.

City personnel have been hauling cover soil into Permit #588 Landfill and spreading over exposed areas of waste in non-active filling areas during the second half of June. The City's Street Department allocated 7 dump trucks to stockpile soil at a staging area at the north end of the Permit #588 Landfill, which is moved by the Facility to the south end and spread over non-active filling areas. See reference photos below for this update period.



Facing west uncovered waste in vicinity of LFG lateral, air, and FM (6/21/22)



Facing north from SW corner just west of filling area (6/21/22)



View of South wall looking west, waste covered in Posi-Shell (6/21/22)



New cover soil spread on south end. Active fill area to the left. View toward SE corner (6/30/22)



New cover soil on SE end. Active fill area behind. View of SE corner (6/30/22)

EVALUATION OF LFG SYSTEM

There should be several functional dedicated pneumatic dewatering pumps available on standby to be switched out in the event a well has a non-functioning pump. As of 6/15/22, the pump in the new sump in the southeast section of the landfill needs to be cleaned or switched. SCS addressed this on 6/16/22 and the new sump pump has been operational during this reporting period. The City has set up a dedicated pump cleaning and testing station allowing SCS-FS O&M access to the City's wash bay. This includes an air compressor from a service truck and a water barrel to test the pneumatic pumps to satisfy this need from O&M. As of 6/24/22, there were 11 LFG well pumps that were either replaced with one of the four new pumps or the pump was cleaned and repaired and reinstalled in operating condition. SCS will provide detailed analysis of LFG well dewatering efforts during the next update.

SCS Engineers advises the City to procure four additional Pump One pneumatic pumps to have on standby for O&M to replace pumps as necessary during future pump cleaning activities. SCS understands the City has allocated funds in their FY22-23 budget to procure these pumps. The City authorized SCS O&M to order pump replacement parts as needed to keep pumps operational.

SCS performed the Second Quarter 2022 Surface Emissions Monitoring event on 6/9/22. Results from this event indicated one exceedance of the 76 points monitored on the serpentine route. In addition, seven exceedances were identified at the well surface cover penetration. The City is performed corrective actions to the exceedance on the serpentine route, which passed the retest. SCS will be issuing an alternate remedy letter regarding the seven exceedances at the well surface cover penetration.

Please contact SCS or City personnel if you have any questions or require additional information.

cc: Randall Eads, City of Bristol
Michael Maine, City of Bristol
Jeff Hurst, VDEQ-SWRO
Tom Lock, SCS Field Services

David Cochran, City of Bristol
Erin Willard, EPA Region III
Stacy Bowers, VDEQ-SWRO
Robert E. Dick, P.E., SCS Engineers

Note	Well Depth	Date Drill	Phase	Month	June	June	June	June	June	June	June	June	June	June	June	June	June	June	June	June
				Day	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
				Date	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
				Well Number																
1	102	10/16/2016	Old Well	35	105	105	100	79	81	62	80	85	90	85	80	80	80	84	85	60
2	70	9/6/2017	Old Well	39	130	130	130	110	110	108	105	110	110	105	110	110	110	108	110	105
3	100	9/7/2017	Old Well	40	80	80	110	110	110	110	120	115	115	115	115	120	115	117	120	115
4	110	10/4/2016	Old Well	46	100	95	115	160	150	155	150	155	155	150	160	155	160	155	160	160
5	120	10/4/2016	Old Well	47	100	95	120	120	119	121	130	130	125	130	125	120	120	120	125	125
6	120	9/17/2013	Old Well	29				118	109	109	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
7	100	8/23/2017	Old Well	30R				Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
8	120	8/30/2017	Old Well	31R	170	170	150	150	148	149	140	140	145	145	140	145	145	118	140	145
9	70	7/29/2016	Old Well	32				72	70	64		70	75	70	75	75	75	81	75	75
10	100	7/28/2016	Old Well	33				118	110	110		110	110	110	110	110	110	112	110	110
11	100	7/30/2016	Old Well	34				80	80	70	70	80	85	90	90	90	85	87	85	85
12	100	8/1/2016	Old Well	36				Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
13	100	8/24/2017	Old Well	37	170	170	130	150	149	149	145	150	150	150	145	140	150	149	150	140
14	50	8/25/2017	Old Well	38				80	80	88	80	90	100	90	90	90	85	80	90	90
15	75	9/8/2017	Old Well	41				122	122	120	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
16	57	9/8/2017	Old Well	42				128	120	122	120	120	120	120	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
17	110	10/7/2016	Old Well	48				70	55	54	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
1	120	10/1/2021	New Well	32R	150	150	150	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
2	110	10/1/2021	New Well	49	150	145	130	129	130	130	125	130	125	130	130	125	125	125	130	130
3	96	10/1/2021	New Well	50	150	150	125	132	130	129	125	120	125	130	120	120	120	116	130	150
4	114	10/1/2021	New Well	51	130	120		112	102	82	110	110	120	110	140	135	105	108	115	110
5	109	10/1/2021	New Well	52	150	150	120	124	121	120	130	130	130	150	150	145	165	155	160	155
6	91	10/1/2021	New Well	53	110	100	105	119	109	109	120	120	120	120	120	120	110	111	120	120
7	91	10/1/2021	New Well	54	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
8	104	10/1/2021	New Well	55	Too Tall	130	135	128	122	125	120	125	125	120	130	130	125	128	120	150
9	109	10/1/2021	New Well	56	Too Tall	100	110	135	128	124	140	Too Tall	Too Tall	Too Tall	130	130	135	132	140	130
10	103	10/1/2021	New Well	57	105	90	105	128	133	128	130	Too Tall	Too Tall	125	140	140	130	145	130	130
11	92	10/1/2021	New Well	58	100	90	120	122	120	119	120	120	120	120	120	120	115	115	120	
12	72	10/1/2021	New Well	59	90	90	105	110	110	109	105	110	120	105	110	110	105	108	110	110
13	120	10/1/2021	New Well	60	135	140	120	120	110	120	125	120	125	120	120	120	125	128	120	125
14	105	10/1/2021	New Well	61	130	129	105	120	102	98	100	100	100	105	100	100	100	98	105	100
15	120	10/1/2021	New Well	62	130	125	120	105	100	92	105	110	110	110	110	110	105	107	110	110
16	117	10/1/2021	New Well	63	105	105	100	Too Tall	Too Tall	Too Tall	70	95	100	100	90	90	80	82	95	90
17	120	10/1/2021	New Well	64	160	155	130	139	132	138	130	135	130	130	135	135	135	136	140	140
18	100	10/1/2021	New Well	65	120	115	100	90	79	72	80	95	90	85	85	85	90	88	100	100
19	102	10/1/2021	New Well	66	105	95	100	125	120	124	125	130	180	130	120	120	120	124	125	130
20	100	10/1/2021	New Well	67	155	130	135	139	140	136	140	140	140	140	140	140	135	128	128	155
21	75	10/1/2021	New Well	68	130	130	110	118	118	112	110	110	110	110	120	120	110	108	120	120



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Certificate of Analysis

Final Report

Laboratory Order ID 22F0744

Client Name:	SCS Field Services - Harrisburg, PA	Date Received:	June 10, 2022 10:19
	4330 Lewis Road, Suite 1	Date Issued:	June 17, 2022 15:19
	Harrisburg, PA 17111	Project Number:	07220028.00
Submitted To:	Tom Lock	Purchase Order:	07-SO04251
Client Site I.D.:	Bristol		

Enclosed are the results of analyses for samples received by the laboratory on 06/10/2022 10:19. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads 'Ted Soyars'.

Ted Soyars

Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

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	Harrisburg, PA 17111	Project Number:	07220028.00
Submitted To:	Tom Lock	Purchase Order:	07-SO04251
Client Site I.D.:	Bristol		

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
46	22F0744-01	Air	06/08/2022 12:47	06/10/2022 10:19



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Submitted To: Tom Lock

Project Number: 07220028.00

Client Site I.D.: Bristol

Purchase Order: 07-SO04251

ANALYTICAL RESULTS

Project Location:

Sample Description/Location:

Initial Vacuum(in Hg): 21.0

Field Sample #: 46

Sub Description/Location:

Final Vacuum(in Hg):

Sample ID: 22F0744-01

Canister ID: 063-00189: 2884

Receipt Vacuum(in Hg):

Sample Matrix: Air

Canister Size: 1.4

Flow Controller Type: Passive

Sampled: 6/8/2022 12:47

Flow Controller ID: LFGST006

Sample Type: LG

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

Analyte	ppmv			Flag/Qual	Dilution	PF	Date/Time Analyzed	Analyst
	Result	MDL	LOQ					
Carbon Monoxide, as received	959	90.0	90.0		9	1	6/14/22 12:29	DFH



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Project Number: 07220028.00

Client Site I.D.: Bristol

Purchase Order: 07-SO04251

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis			Preparation Method:	No Prep VOC GC Air	
22F0744-01	1.00 mL / 1.00 mL	ALT-145	BFF0913	SFF0932	AG00026



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Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Reporting Result	Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0913 - No Prep VOC GC Air

Blank (BFF0913-BLK1)

Prepared & Analyzed: 06/10/2022

Carbon Monoxide < 10.0 ppmv

LCS (BFF0913-BS1)

Prepared & Analyzed: 06/10/2022

Methane	4480	500	ppmv	5000	89.5	0-200
Carbon dioxide	3590	500	ppmv	5000	71.8	0-200
Oxygen (O2)	4770	500	ppmv	5000	95.3	0-200
Nitrogen (N2)	5020	500	ppmv	5000	100	0-200
Hydrogen (H2)	5210	200	ppmv	5100	102	0-200
Carbon Monoxide	4620	10	ppmv	5000	92.4	0-200

Duplicate (BFF0913-DUP1)

Source: 22F0402-01

Prepared & Analyzed: 06/10/2022

Methane	519000	4500	ppmv	518000	0.184	25
Carbon dioxide	270000	4500	ppmv	267000	0.921	25
Oxygen (O2)	17500	4500	ppmv	17400	0.624	25
Nitrogen (N2)	115000	4500	ppmv	114000	0.725	25
Hydrogen (H2)	<	1800	ppmv	<1800	NA	25
Carbon Monoxide	<	90.0	ppmv	<90.0	NA	25

Duplicate (BFF0913-DUP2)

Source: 22F0514-01

Prepared & Analyzed: 06/10/2022

Methane	316000	4500	ppmv	315000	0.305	25
Carbon dioxide	436000	4500	ppmv	433000	0.709	25
Oxygen (O2)	<	4500	ppmv	4690	NA	25
Nitrogen (N2)	109000	4500	ppmv	113000	3.34	25
Hydrogen (H2)	31900	1800	ppmv	32200	1.14	25
Carbon Monoxide	181	90.0	ppmv	184	2.12	25

Duplicate (BFF0913-DUP3)

Source: 22F0618-01

Prepared & Analyzed: 06/10/2022

Methane	322000	4500	ppmv	322000	0.0481	25
Carbon dioxide	382000	4500	ppmv	382000	0.00201	25
Oxygen (O2)	<	4500	ppmv	<4500	NA	25
Nitrogen (N2)	88400	4500	ppmv	88400	0.0536	25
Hydrogen (H2)	109000	1800	ppmv	109000	0.517	25
Carbon Monoxide	106	90.0	ppmv	109	1.93	25



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Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Reporting			Spike Level	Source Result	%REC			RPD		Qual
	Result	Limit	Units			%REC	Limits	RPD	Limit		

Batch BFF0913 - No Prep VOC GC Air

Duplicate (BFF0913-DUP4)				Source: 22F0618-02		Prepared & Analyzed: 06/10/2022				
Methane	356000	4500	ppmv			356000	0.124		25	
Carbon dioxide	390000	4500	ppmv			390000	0.000970		25	
Oxygen (O2)	<	4500	ppmv			<4500	NA		25	
Hydrogen (H2)	88400	1800	ppmv			88600	0.185		25	
Nitrogen (N2)	52100	4500	ppmv			52400	0.590		25	
Carbon Monoxide	112	90.0	ppmv			112	0.160		25	

Duplicate (BFF0913-DUP6)				Source: 22F0619-01RE1		Prepared: 06/10/2022 Analyzed: 06/14/2022				
Methane	212000	4500	ppmv			207000	2.41		25	
Carbon dioxide	400000	4500	ppmv			387000	3.29		25	
Oxygen (O2)	4540	4500	ppmv			5690	22.6		25	
Nitrogen (N2)	54700	4500	ppmv			58300	6.35		25	
Hydrogen (H2)	229000	1800	ppmv			227000	1.10		25	
Carbon Monoxide	390	90.0	ppmv			378	3.09		25	

Duplicate (BFF0913-DUP7)				Source: 22F0744-01		Prepared: 06/10/2022 Analyzed: 06/14/2022				
Methane	132000	4500	ppmv			132000	0.181		25	
Carbon dioxide	384000	4500	ppmv			379000	1.32		25	
Oxygen (O2)	25400	4500	ppmv			25700	1.15		25	
Hydrogen (H2)	65700	1800	ppmv			65200	0.752		25	
Nitrogen (N2)	276000	4500	ppmv			275000	0.516		25	
Carbon Monoxide	920	90.0	ppmv			959	4.22		25	

Certified Analytes included in this Report

Analyte	Certifications	Analyte	Certifications
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Client Site I.D.: Bristol

Purchase Order: 07-SO04251

Code	Description	Laboratory ID	Expires
MADEP	Massachusetts DEP	M-VA913	06/30/2022
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NC	North Carolina DENR	495	07/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NCDOH	North Carolina Department of Health	51714	07/31/2022
NJDEP	NELAP-New Jersey DEP	VA015	06/30/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

Qualifiers and Definitions

RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
PF	Preparation Factor
MDL	Method Detection Limit
LOQ	Limit of Quantitation
ppbv	parts per billion by volume

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

All EPA method 3C results are reported as normalized values when the sum total of all evaluated constituents is outside $\pm 10\%$ of the absolute.

AIR ANALYSIS

CHAIN OF CUSTODY

Equipment due 5/27/22

COMPANY NAME: SCS Field Services - Harrisburg	INVOICE TO: Same	PROJECT NAME/Quote #: Bristol
CONTACT: Ryan Seymours	INVOICE CONTACT:	SITE NAME: Bristol
ADDRESS: 3	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL:	Pretreatment Program:
Is sample for compliance reporting? YES NO		Regulatory State:
Is sample from a chlorinated supply? YES NO		PWS I.D. #:
SAMPLER NAME (PRINT): Ryan Seymours		
SAMPLER SIGNATURE: Ryan Seymours		
Turn Around Time: Circle: 10 5 Days or Day		

Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other															063-22E-0019				
CLIENT SAMPLE I.D.	Regulator Info		Canister Information				Sampling Start Information				Sampling Stop Information				ANALYSIS				
	Flow Controller ID	Cal Flow (mL/min)	Canister ID	(1) 2 3	Cleaning Batch ID	LAB Outgoing Canister Vacuum (in Hg)	LAB Receiving Canister Vacuum (in Hg)	Barometric Pres. (in Hg):			Barometric Pres. (in Hg):								
								Start Date	Start Time (24hr clock)	Initial Canister Vacuum (in Hg)	Starting Sample Temp °F	Stop Date	Stop Time (24hr clock)	Final Canister Vacuum (in Hg)		Ending Sample Temp °F			
1) 416	LF65T 0016		284	1.4	BC220510-02	21.0	4.0 16.5 19	6/8/22	12:46	192	159	6/8/22	12:47	0	167	Matrix (See Codes) LG	Alt 145 CO x		
2)			286	1.4	BC220510-02	21.0										LG	x		
3)			315	1.4	BC220510-02	21.0										LG	x		
4)			334	1.4	BC220510-02	21.0										LG	x		

RELINQUISHED: Ryan Seymours	RECEIVED: Fed AG	DATE / TIME
ELINQUISHED: Fed AG	RECEIVED: JH 6/10/22	DATE / TIME 1019
ELINQUISHED:	RECEIVED:	DATE / TIME

21.0°C 310 noise noise

LAB USE ONLY

QC Data Package

Level I ☐

Level II ☐

Level III ☐

Level IV ☐

22F0744

SCS Field Services 22F0744

Carbon Monoxide Monitoring - Br

Recd: 06/10/2022 Due: 06/17/2022

v130325002



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Certificate of Analysis

Final Report

Laboratory Order ID 22F1128

Client Name:	SCS Field Services - Harrisburg, PA	Date Received:	June 20, 2022 11:05
	4330 Lewis Road, Suite 1	Date Issued:	June 29, 2022 17:35
	Harrisburg, PA 17111	Project Number:	[none]
Submitted To:	Scott Schoffner	Purchase Order:	
Client Site I.D.:	Bristol		

Enclosed are the results of analyses for samples received by the laboratory on 06/20/2022 11:05. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads 'Ted Soyars'.

Ted Soyars

Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical, Inc.





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Certificate of Analysis

Final Report

Laboratory Order ID 22F1128

Client Name: SCS Field Services - Harrisburg, PA Date Received: June 20, 2022 11:05
4330 Lewis Road, Suite 1 Date Issued: June 29, 2022 17:35

Harrisburg, PA 17111 Project Number: [none]
Submitted To: Scott Schoffner Purchase Order:

Client Site I.D.: Bristol

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW-55	22F1128-01	Air	06/16/2022 14:14	06/20/2022 11:05
GW-46	22F1128-02	Air	06/16/2022 14:14	06/20/2022 11:05



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4330 Lewis Road, Suite 1

Date Received: June 20, 2022 11:05
Date Issued: June 29, 2022 17:35

Harrisburg, PA 17111

Submitted To: Scott Schoffner

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:
Field Sample #: GW-55
Sample ID: 22F1128-01
Sample Matrix: Air
Sampled: 6/16/2022 14:14
Sample Type: LG

Sample Description/Location:
Sub Description/Location:
Canister ID: 063-00083: 12855
Canister Size: 1.4

Initial Vacuum(in Hg): 20.6
Final Vacuum(in Hg): 11.8
Receipt Vacuum(in Hg): 11.8
Flow Controller Type: Passive
Flow Controller ID:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

Analyte	ppmv			Flag/Qual	Dilution	PF	Date/Time Analyzed	Analyst
	Result	MDL	LOQ					
Carbon Monoxide, as received	200	90.0	90.0		9	1	6/29/22 15:32	RJW



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Harrisburg, PA 17111

Submitted To: Scott Schoffner

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:

Sample Description/Location:

Initial Vacuum(in Hg): 20.6

Field Sample #: GW-46

Sub Description/Location:

Final Vacuum(in Hg): 7.6

Sample ID: 22F1128-02

Canister ID: 063-00085: 12405

Receipt Vacuum(in Hg): 7.6

Sample Matrix: Air

Canister Size: 1.4

Flow Controller Type: Passive

Sampled: 6/16/2022 14:14

Flow Controller ID:

Sample Type: LG

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

Analyte	ppmv			Flag/Qual	Dilution	PF	Date/Time Analyzed	Analyst
	Result	MDL	LOQ					
Carbon Monoxide, as received	990	90.0	90.0		9	1	6/29/22 16:34	RJW



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4330 Lewis Road, Suite 1

Date Received: June 20, 2022 11:05
Date Issued: June 29, 2022 17:35

Harrisburg, PA 17111

Submitted To: Scott Schoffner

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis			Preparation Method:	No Prep VOC GC Air	
22F1128-01	1.00 mL / 1.00 mL	ALT-145	BFF1553	SFF1453	AG00026
22F1128-02	1.00 mL / 1.00 mL	ALT-145	BFF1553	SFF1453	AG00026



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Submitted To: Scott Schoffner

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Reporting Result	Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Qual
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Batch BFF1553 - No Prep VOC GC Air

Blank (BFF1553-BLK1)

Prepared & Analyzed: 06/29/2022

Carbon Monoxide < 10.0 ppmv

LCS (BFF1553-BS1)

Prepared & Analyzed: 06/29/2022

Methane	3290	500	ppmv	5000	65.9	0-200
Carbon dioxide	4250	500	ppmv	5000	85.1	0-200
Oxygen (O2)	4850	500	ppmv	5000	97.0	0-200
Nitrogen (N2)	5420	10000	ppmv	5000	108	0-200
Hydrogen (H2)	5260	200	ppmv	5100	103	0-200
Carbon Monoxide	4620	10	ppmv	5000	92.4	0-200

Duplicate (BFF1553-DUP1)

Source: 22F0977-01

Prepared & Analyzed: 06/29/2022

Methane	202000	4500	ppmv	197000	2.53	25
Carbon dioxide	404000	4500	ppmv	392000	2.96	25
Oxygen (O2)	6140	4500	ppmv	6240	1.62	25
Nitrogen (N2)	<	90000	ppmv	<90000	NA	25
Hydrogen (H2)	223000	1800	ppmv	218000	2.22	25
Carbon Monoxide	363	90.0	ppmv	355	2.23	25

Duplicate (BFF1553-DUP2)

Source: 22F0977-02

Prepared & Analyzed: 06/29/2022

Methane	291000	4500	ppmv	284000	2.21	25
Carbon dioxide	336000	4500	ppmv	327000	2.88	25
Oxygen (O2)	<	4500	ppmv	<4500	NA	25
Nitrogen (N2)	101000	90000	ppmv	97000	3.66	25
Hydrogen (H2)	99100	1800	ppmv	97000	2.11	25
Carbon Monoxide	98.2	90.0	ppmv	96.0	2.22	25

Duplicate (BFF1553-DUP3)

Source: 22F0977-03

Prepared & Analyzed: 06/29/2022

Methane	282000	4500	ppmv	283000	0.302	25
Carbon dioxide	253000	4500	ppmv	255000	0.644	25
Oxygen (O2)	<	4500	ppmv	<4500	NA	25
Hydrogen (H2)	48800	1800	ppmv	49500	1.45	25
Nitrogen (N2)	258000	90000	ppmv	259000	0.458	25
Carbon Monoxide	<	90.0	ppmv	<90.0	NA	25



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4330 Lewis Road, Suite 1

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Harrisburg, PA 17111

Submitted To: Scott Schoffner

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Reporting			Spike Level	Source Result	%REC			RPD		Qual
	Result	Limit	Units			%REC	Limits	RPD	Limit		

Batch BFF1553 - No Prep VOC GC Air

Duplicate (BFF1553-DUP4)				Source: 22F0981-01		Prepared & Analyzed: 06/29/2022				
Methane	354000	4500	ppmv			343000	3.20		25	
Carbon dioxide	380000	4500	ppmv			365000	3.90		25	
Oxygen (O2)	<	4500	ppmv			<4500	NA		25	
Nitrogen (N2)	<	90000	ppmv			<90000	NA		25	
Hydrogen (H2)	93300	1800	ppmv			90600	2.89		25	
Carbon Monoxide	122	90.0	ppmv			118	3.37		25	
Duplicate (BFF1553-DUP5)				Source: 22F1032-01		Prepared & Analyzed: 06/29/2022				
Methane	18300	4500	ppmv			18500	0.996		25	
Carbon dioxide	671000	4500	ppmv			670000	0.111		25	
Oxygen (O2)	<	4500	ppmv			<4500	NA		25	
Hydrogen (H2)	243000	1800	ppmv			243000	0.306		25	
Nitrogen (N2)	<	90000	ppmv			<90000	NA		25	
Carbon Monoxide	709	90.0	ppmv			700	1.20		25	
Duplicate (BFF1553-DUP6)				Source: 22F1128-01		Prepared & Analyzed: 06/29/2022				
Methane	297000	4500	ppmv			296000	0.240		25	
Carbon dioxide	446000	4500	ppmv			446000	0.0585		25	
Oxygen (O2)	<	4500	ppmv			<4500	NA		25	
Nitrogen (N2)	<	90000	ppmv			<90000	NA		25	
Hydrogen (H2)	88600	1800	ppmv			88100	0.510		25	
Carbon Monoxide	193	90.0	ppmv			200	3.58		25	
Duplicate (BFF1553-DUP7)				Source: 22F1128-02		Prepared & Analyzed: 06/29/2022				
Methane	292000	4500	ppmv			294000	0.645		25	
Carbon dioxide	467000	4500	ppmv			470000	0.532		25	
Oxygen (O2)	<	4500	ppmv			<4500	NA		25	
Hydrogen (H2)	81400	1800	ppmv			82000	0.687		25	
Nitrogen (N2)	<	90000	ppmv			<90000	NA		25	
Carbon Monoxide	981	90.0	ppmv			990	0.886		25	



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Harrisburg, PA 17111

Submitted To: Scott Schoffner

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Certified Analytes included in this Report

Analyte	Certifications	Analyte	Certifications
Code	Description	Laboratory ID	Expires
MADEP	Massachusetts DEP	M-VA913	06/30/2022
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NC	North Carolina DENR	495	07/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NCDOH	North Carolina Department of Health	51714	07/31/2022
NJDEP	NELAP-New Jersey DEP	VA015	06/30/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

Qualifiers and Definitions

RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
PF	Preparation Factor
MDL	Method Detection Limit
LOQ	Limit of Quantitation
ppbv	parts per billion by volume

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

All EPA method 3C results are reported as normalized values when the sum total of all evaluated constituents is outside $\pm 10\%$ of the absolute.



ENTHALPY
ANALYTICAL
formerly Air, Water & Soil Laboratories

AIR ANALYSIS

CHAIN OF CUSTODY Equipment due 6/30/22

COMPANY NAME: SCS Field Services - Harrisburg	INVOICE TO: Same	PROJECT NAME/Quote #: Bristol
CONTACT:	INVOICE CONTACT:	SITE NAME:
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL:	Pretreatment Program:
Is sample for compliance reporting? YES NO		Regulatory State:
Is sample from a chlorinated supply? YES NO		PWS I.D. #:
SAMPLER NAME (PRINT): <u>John Doe</u> SAMPLER SIGNATURE: <u>[Signature]</u>		
Turn Around Time: Circle: 10 5 Days or Day		

CLIENT SAMPLE I.D.	Regulator Info				Canister Information			Sampling Start Information				Sampling Stop Information				ANALYSIS
	Flow Controller ID	Cal Flow (mL/min)	Canister ID	Cleaning Batch ID	LAB Outgoing Canister Vacuum (in Hg)	LAB Receiving Canister Vacuum (in Hg)	Barometric Pres. (in Hg):		Starting Sample Temp °F		Barometric Pres. (in Hg):		Ending Sample Temp °F			
							Start Date	Start Time (24hr clock)	Initial Canister Vacuum (in Hg)	Start Date	Stop Date	Stop Time (24hr clock)	Final Canister Vacuum (in Hg)	Ending Sample Temp °F		
1) <u>6/1/22</u>			12855	1.4 BC220518-01	20.6	4.8	6/1/22	14:00	7.80	139	6/1/22	14:14	-25	139	LG X	
2) <u>6/1/22</u>			12405	1.4 BC220526-01	20.6	7.6	6/1/22	18:59	7.30	170	6/1/22	19:00	-25	170	LG X	
3)																
4)																

RELINQUISHED: <u>[Signature]</u> 6/1/22 1800	RECEIVED: <u>KEDEX G</u> 6/1/22 1800	DATE / TIME
INQUIRED: <u>KEDEX G</u>	RECEIVED: <u>[Signature]</u>	DATE / TIME
INQUIRED:	RECEIVED:	DATE / TIME

QC Data Package
 Level I ☐ Level II ☐ Level III ☐ Level IV ☐

LAB USE ONLY
 22F1128
 SCS Field Services
 Bristol
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